

CLAIM AMENDMENTS

1-48. (cancelled)

49. (previously presented) A method of manufacturing a self-supporting volume unit for an aluminum tank suitable for storing very cold cryogenic liquids, such as liquefied ethylene (LEG) or natural gas (LNG), the volume unit defining an internal space and having a basic form corresponding to a rectangular prism having a first side opposite a third side and a second side opposite a fourth side, the method comprising:

- providing first mechanically extruded aluminum profile elements each having a plane part and a stiffening part extending essentially perpendicular to the plane part and having a free distal end relative to the plane part,

- forming a first plane element by attaching the first profile elements to each other by their plane parts using friction welding, the plane parts of the first profile elements being substantially coplanar,

- providing second mechanically extruded aluminum profile elements,

- forming a stiffener by attaching the second profile elements to each other by friction welding,

- attaching the stiffener to the first plane element,

- providing at least second, third and fourth plane elements each having at least one stiffener attached thereto, and

- attaching the first, second, third and fourth plane elements having stiffeners attached thereto to each other to form said first, second, third and fourth sides respectively of said self-supporting volume unit.

50. (previously presented) A self-supporting volume unit for fabrication of an aluminum tank suitable for storing very cold cryogenic liquids, such as liquefied ethylene (LEG) or natural gas (LNG), the volume unit having a basic form corresponding to a rectangular prism having a first side opposite a third side and a second side opposite a fourth side, the volume unit comprising:

a first plane element that comprises first mechanically extruded aluminum profile elements each having a plane part and a stiffening part extending essentially perpendicular to the plane part and having a free distal end relative to the plane part, the first profile elements being attached to each other by friction welding their plane parts with their plane parts substantially coplanar,

at least one stiffener that comprises second mechanically extruded aluminum profile elements attached to each other by friction welding and is attached to the first plane element,

at least second, third and fourth plane elements each having at least one stiffener attached thereto,

and wherein the first, second, third and fourth plane elements are attached to each other to form said first, second, third and fourth sides respectively of said self-supporting volume unit.

51. (new) A volume unit according to claim 50, wherein the first and second plane elements are attached to each other through an edge element.

52. (new) A volume unit according to claim 50, wherein the volume unit has a fifth side that is perpendicular to the first, second, third and fourth sides, and the tank comprises a fifth plane element attached to the first, second, third and fourth plane elements through edge elements and corner elements.

53. (new) A volume unit according to claim 50, wherein the first mechanically extruded aluminum profile elements are symmetrical relative to a plane normal to the plane part and the stiffening part is T-shaped or I-shaped in cross-section.

54. (new) A volume unit according to claim 50, wherein each of the second mechanically extruded aluminum profile elements is elongated and the second mechanically extruded elements are disposed parallel to each other.

55. (new) A volume unit according to claim 54, wherein each of the second mechanically extruded aluminum profile elements has two opposite parallel longitudinal edges and the second profile elements are attached to each other by friction welding at their longitudinal edges.

56. (new) A volume unit according to claim 50, wherein at least one of the first, second, third and fourth plane elements comprises at least two component plane elements.

57. (new) An aluminum tank comprising a first volume unit according to claim 50 and at least one additional volume unit having a basic form corresponding to a rectangular prism having a first side opposite a third side and a second side opposite a fourth side, said one additional volume unit being attached to the first volume unit.

58. (new) A tank according to claim 57, further comprising a splash bulkhead located between the first volume unit and said one additional volume unit and formed with openings connecting adjacent volume units.

59. (new) A tank according to claim 57, wherein the tank is provided with means for filling and emptying the tank.

60. (new) A method according to claim 49, comprising machining the plane elements to predetermined dimensions and beveling ends of the plane elements to produce a welding groove.

61. (new) A method according to claim 49, wherein each of the first mechanically extruded aluminum profile elements is symmetrical relative to a plane normal to the plane part of the profile element and the stiffening part is T-shaped or I-shaped in cross-section and projects perpendicularly to the plane part of the profile element.

62. (new) A method according to claim 49, wherein the step of attaching the first, second, third and fourth plane elements to each other comprises attaching the first and second plane elements to each other through an edge element.

63. (new) A method according to claim 62, comprising making the edge element by providing rolled plate and bending the rolled plate.

64. (new) A method according to claim 49, wherein the volume unit has a fifth side that is perpendicular to the first, second, third and fourth sides, the step of attaching the first, second, third and fourth plane elements to each other forms an intermediate component of the volume unit, and the method comprises providing a fifth plane element having at least one stiffener attached thereto and attaching the fifth plane element to the intermediate component through edge elements and corner elements.

65. (new) A method according to claim 64, comprising making the edge and corner elements by providing rolled plate and bending the rolled plate.

66. (new) A method according to claim 49, wherein each of the second mechanically extruded aluminum profile elements is elongated and the second mechanically extruded elements are disposed parallel to each other.

67. (new) A method according to claim 66, wherein each of the second mechanically extruded aluminum profile elements has two opposite parallel longitudinal edges and the step of forming the stiffener comprises attaching the second profile elements to each other by friction welding at their longitudinal edges.

68. (new) A method of manufacturing an aluminum tank, comprising:
manufacturing a first volume unit by a method according to claim 49,

providing at least one additional volume unit defining an internal space and having a basic form corresponding to a rectangular prism having a first side opposite a third side and a second side opposite a fourth side , and
attaching the volume units together.

69. (new) A method according to claim 68, wherein the tank further comprises a splash bulkhead located between said first volume unit and said one additional volume unit and formed with openings connecting adjacent volume units, and the method comprises forming the splash bulkhead by providing mechanically extruded aluminum profile elements and attaching the profile elements to each other by friction welding.

70. (new) A method according to claim 69, wherein the splash bulkhead is about 16 x 16 meters in size.